IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

Stephen Thaler, an individual

Plaintiff,

v.

Andrei IANCU, in his official capacity as Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office, and United States Patent and Trademark Office

Defendants.

Case No. 1:20-cv-00903-LMB-TCBVAED

PLAINTIFF'S MEMORANDUM OF LAW IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT

Hearing Date: 3/29/2021
Time: 10:00 a.m.

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I. INTRODUCTION

Plaintiff Stephen Thaler ("Dr. Thaler") develops, owns, and operates advanced artificial intelligence (AI) systems capable of generating patentable output under circumstances in which no natural person traditionally qualifies as an inventor ("AI-Generated Inventions"). One such system is called DABUS, which is an acronym for Device for the Autonomous Bootstrapping of Unified Sentience.

DABUS created two patentable inventions that are the subject of this proceeding: the "Neural Flame" and "Fractal Container" (the subject matter of patent application numbers 16/524,350 and 16/524,532, respectively [the "Applications"]).

Plaintiff filed the Applications with Defendant United States Patent and Trademark Office ("USPTO") on July 29, 2019. Because no natural person qualifies as an inventor of the Applications, and because they were generated by DABUS, the Applications list DABUS as the inventor. Dr. Thaler, as the owner, developer, and user of DABUS is listed as the patent applicant and entitled to own the Applications as well as any patents that may ultimately issue.

Defendants rejected the Applications on the basis that they did not identify an inventor who was a natural person ("Rejections"). However, Plaintiff could not identify an inventor who was a natural person because there was no such person.

The Rejections create a new substantive requirement for patentability that is contrary to existing law and at odds with the policy underlying the patent system. The patent system is designed to incentivize innovation, promote disclosure of information, and encourage commercialization of new technologies. Allowing protection for AI-Generated Inventions will accomplish all of these goals, because it will incentivize parties such as Dr. Thaler to develop and use inventive machines—ultimately promoting the progress of science. Further, listing

DABUS as an inventor protects the moral rights of human inventors because it prevents a person from falsely claiming credit and devaluing legitimate human ingenuity.

Defendants based the Rejections on statutory language and cases that refer to inventors as natural persons. However, at most these authorities simply assumed that inventive activity could only be performed by natural persons, and they were concerned with protecting the rights of human inventors with respect to patent applicants who were artificial persons in the form of, for example, corporations. None of these authorities involved AI-Generated Inventions and should not now be interpreted to prohibit patent protection. Failing to provide protection for AI-Generated Inventions is antithetical to the purpose of the patent system. It will both encourage applicants to mispresent to role of people in the inventive process and it will inhibit innovation.

Plaintiff contends that the Rejections were arbitrary, capricious, an abuse of discretion, not in accordance with the law, unsupported by substantial evidence, and in excess of Defendants' statutory authority. Plaintiff seeks to set aside the Notices to File Missing Parts of Nonprovisional Applications and have the Applications reinstated.

Plaintiff moves for summary judgment as to the legal issue alone—whether an AI-Generated Invention is patentable. No dispute of any material fact exists.

II. STATEMENT OF UNDISPUTED MATERIAL FACTS

1. Plaintiff Dr. Stephen Thaler develops, owns, and applies AI systems capable of generating patentable output under circumstances in which no natural person traditionally qualifies as an inventor. (ECF 1, ¶ 13.)

2. Plaintiff's AI system DABUS produced the two inventions at issue here: the Neural Flame, a light beacon capable of flashing in a new and inventive manner to attract

attention, and the Fractal Container, a beverage container based on fractal geometry. (ECF 15-2 at p. 61 [A61]; ECF 15-3 at p. 93 [A346])

3. As explained in the Applications, "In the case of the instant invention, the machine only received training in general knowledge in the field, and proceeded to independently conceive of the invention, and to identify it as novel and salient. If similar training had been given to a human student, the student rather than the trainer would meet the inventorship criteria as inventor." (ECF 15-2 at p. 61 [A61]; ECF 15-3 at p. 93 [A346]).[1]

4. Plaintiff applied for patents for the Neural Flame and Fractal Container on July 29, 2019. (ECF 15-2 at p.94 [A94]; and ECF 15-3 at p. 124 [A377]) The patent application numbers for each application respectively are 16/524,350 and 16/524,532. (ECF 15-2 at p. 94 [A94]; ECF 15-3 at p. 124 [A377].)

5. Although the Applications may not be the first patent applications for AI-Generated Inventions, they are thought to be the first Applications in which an applicant has disclosed that the subject matter of an application is an AI-Generated Invention. (See, e.g., Ryan Abbott, *I Think, Therefore I Invent: Creative Computers and the Future of Patent Law*, 54 B. C. L. Rev. 1083-1088 (2016); ECF 15-2 at p. 8 [A409]; https://www.uspto.gov/sites/default/files/documents/16524350_22apr2020.pdf [Defendants publishing one of the Rejections for its precedential value.])

6. Patent applications require an applicant to list all inventors as well as their given and family names in application data sheets (ADS). Plaintiff listed "[DABUS]" and "[Invention

[1] Plaintiff's cites are to the administrative record. Plaintiff cites to the page number of the docket filing (e.g. 61) as well as the administrative record (e.g. A61). Not all instances of the ECF filing page number correlate with the same number as the administrative record.

generated by artificial intelligence]" in the fields for inventor names. (ECF 15-2, at p. 85; ECF 15-3 at p. 381)

7. DABUS is not capable of making an inventor's oath or declaration as required by 35 U.S.C. § 115(d), so in lieu of the oath, Plaintiff filed a substitute statement under 37 CFR 1.64 that identified Dr. Thaler as the legal representative of DABUS and the applicant for each patent. (ECF 15-2 at pp. 26-27 [A26-27]; ECF 15-3 at pp. 58-59 [A311-312].)

8. Plaintiff also submitted a statement under 37 CFR 3.73(c) identifying Plaintiff as the assignee of the entire right, title, and interest in the Applications, and an assignment document executed by Plaintiff was filed assigning the right to himself on behalf of DABUS. (ECF 15-2 at pp. 71-72 [A71-72]; ECF 15-3 at pp. 107-108 [A360-361].)

9. Given the unprecedented nature of the Applications, Plaintiff also filed an additional "Statement of Inventorship" to provide clarifying remarks that indicated the Applications were based on AI-generated inventions. (ECF 15-2 at pp. 60-65 [A60-65]; ECF 15-3 at pp. 92-97 [A345-350].) The statement explained that the invention was conceived entirely by DABUS, and because of that, DABUS should be listed as the inventor. (See generally id.)

10. As explained in the Statement of Inventorship filed with the applications, "In some instance of machine invention, a natural person might qualify as an inventor by virtue of having exhibited inventive skill in developing a program to solve a particular problem, by skillfully selecting data to provide to a machine, or by identifying the output of a machine as inventive. However, in the present case, the DABUS was not created to solve any particular problem, nor was trained on any special data relevant to the instant invention. The machine rather than a person identified the novelty and salience of the instant invention. A detailed description of how DABUS and a Creativity Machine functions is available in, among others, the

following US patent publications: 5,659,666; 7,454,388 B2; and 2015/0379394 A1." (ECF 15-2 at p. 61 [A61]; ECF 15-3 at p. 93 [A346].)

11. Plaintiff further explained why he could not list himself as the inventor: "Stephen Thaler, the creator of DABUS, is prohibited from listing himself as an inventor for the instant application because he has not contributed to the conception of the instant invention. DABUS performed what is traditionally considered the mental part of the inventive act. Based on DABUS's results, a skilled person could have reduced the invention to practice. Inaccurately listing himself as an inventor could subject Dr. Thaler to criminal sanctions. 18 U.S.C. 1001. The Office presumes that the named inventor in an application is the actual inventor. See MPEP §2137.01." (ECF 15-2 at p. 64 [A64]; ECF 15-3 at p. 96 [A349].)

12. Plaintiff additionally stated, "It has been argued that a natural person may claim inventorship of an autonomous machine invention even in situations in which that person was not involved in the development or operation of a machine by virtue of recognizing the relevance of a machine's output. This approach is questionable in cases in which the natural person has not made an inventive contribution to the disclosed invention in the accepted meaning of the term. In some cases, recognition of the inventive nature of a computer's output may require significant skill, but in others, the nature of inventive output may be obvious. In the present case, DABUS identified the novelty of its own idea before a natural person did." (Id.)

13. Plaintiff's assertions regarding the nature of the invention were accepted and never contested by Defendants. This is consistent with USPTO policies. "The Office presumes that the named inventor or joint inventors in the application are the actual inventor or joint inventors to be named on the patent." Manual of Patent Examining Procedure Section 2109.

14. Plaintiff filed a request for accelerated examination for both Applications which required Applicant to submit a pre-examination search and an accelerated examination support document. As part of which, it was disclosed to Defendants that foreign analogs of the Applications had been filed in the United Kingdom Intellectual Property Office (UKIPO) and European Patent Office (EPO), and that both offices had examined the Applications on their merits and found them to be patentable to the extent possible in a preliminary examination (e.g., not including inventorship issues). (ECF 15-2 at p. 56–59 [A56–59] ECF 15-3 at p. 98–101 [A351–354].)

15. Both Applications followed similar procedural pathways at the USPTO. (See generally ECF 15-1 at p. 2-3 and 5-6.)

16. On August 8, 2019, Defendants issued a "Notice to File Missing Parts of Nonprovisional Application" for each application. The notices indicated that the ADSs did not identify each inventor by a legal name. (ECF 15-2 at pp. 97-98 [A97-98]; ECF 15-3 at pp. 127-128 [A380-381].)

17. A few weeks later, under 37 CFR 1.181, Plaintiff petitioned for supervisory review and to vacate the notices for being unwarranted and/or void. (ECF 15-2 at pp. 111-116 [A111-116]; ECF 15-3 at pp. 141-146 [A394-399].)

18. In December, a second "Notice to File Missing Parts of Nonprovisional Application" was issued for each application. Plaintiff's petitions in response to the initial notices were dismissed in a decision issued on December 17, 2019. (ECF 15-2 at pp. 121-122 [A121-122]; ECF 15-3 at pp. 147-149 [A400-402].)

19. Plaintiff petitioned Defendants again under 37 CFR 1.181 on January 20, 2020. Plaintiff requested reconsideration of the December 17 decisions refusing to vacate the August 8, 2019 notices. (ECF 15-2 at pp. 135-146 [A135-146]; ECF 15-3 at pp. 161-173 [A414-426].)

20. Approximately four months later, the USPTO denied the petitions for both applications. (ECF 15-2 at pp. 205-214 [A205-214]; ECF 15-3 at pp. 203-212 [A456-465].)

21. The USPTO published its decision as to the Neural Flame but not the Fractal Container. (ECF 15-2 at p. 213 [A213]; ECF 15-3 at pp. 210-211 [A463-464].)

22. The USPTO took the position that all patent applications require an inventor who must be a natural person based on various statutory references and case law. (ECF 15-2 at pp. 208-212 [A208-212]; ECF 15-3 at pp. 206-210 [A459-463].)

23. Defendants cited to 35 U.S.C. §101 which states: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter… may obtain a patent therefore, subject to the conditions and requirements of this title." (ECF 15-2 at p. 209 [A209]; ECF 15-3 at p. 207 [A460].)

24. Defendants also cited to various case law holding that corporations and sovereigns cannot be inventors and language within those decisions suggesting that inventors must be natural persons. The decisions also noted that "[c]onception is the touchstone of invention… a mental act[.]" (ECF 15-2 at pp. 209-210 [A209-210]; ECF 15-3 at pp. 207-208 [A460-461].)

25. Those decisions constitute final agency action. Plaintiff has exhausted his available remedies at the USPTO. (See ECF 15-2 at p.232 [A232]; ECF 15-4 at p. 5 [A483].)

VI. LEGAL STANDARD

The Parties are filing cross-motions for summary judgment. (ECF 14 at p. 71.) "Under the APA, agency action may be set aside if the court finds that the agency action was 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" Genetics & IVF Inst. v. Kappos, 801 F. Supp. 2d 497, 502 (E.D. Va. 2011) (citing PhotoCure ASA v. Dudas, 622 F. Supp. 2d 338, 343 (E.D.Va.2009) and quoting 5 U.S.C. § 706(2)(A).) Even in an APA action, "the ordinary standard for summary judgment applies." Id. (citations omitted). "Under the 'ordinary' and well-settled standard, summary judgment is appropriate only if the record shows 'there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.' Id. (citations omitted). "On that 'genuine issue of material fact' front, the APA 'confines judicial review of executive branch decisions to the administrative record of proceedings before the pertinent agency.' Id. (citations omitted). "As such, there can be no genuine issue of material fact in an APA action, and the legal questions presented in [an APA] action are therefore ripe for resolution on cross-motions for summary judgment." Id. (citing Am. Forest Res. Council v. Hall, 533 F. Supp. 2d 84, 89 (D.D.C. 2008) (quoting Occidental Eng'g Co. v. INS, 753 F.2d 766, 769–70 (9th Cir.1985)) ("[I]t is the role of the agency to resolve factual issues to arrive at a decision that is supported by the administrative record, whereas 'the function of the district court is to determine whether or not as a matter of law the evidence in the administrative record permitted the agency to make the decision it did.'")). As the District of Columbia Circuit has stated, 'when a party seeks review of agency action under the APA, the district judge sits as an appellate tribunal,' and '[t]he 'entire case' on review is a question of law." Genetics & IVF Inst., supra, 801 F. Supp. 2d 497 at 502 (citing Am. Bioscience, Inc. v. Thompson, 269 F.3d 1077, 1083 (D.C.Cir. 2001).)

Plaintiff seeks an order compelling Defendants to reinstate the Applications and vacate the prior decision on the petitions filed under 37 CFR 1.181. Under the APA, the Court "shall . . . hold unlawful and set aside agency action, findings, and conclusions found to be—(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; (B) contrary to constitutional right, power, privilege, or immunity; [or] (C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right . . ." 5 U.S.C. § 706(2). The court must judge the propriety of the agency's action based "solely [on] the grounds invoked by the agency" when it made the challenged decision. SEC v. Chenery Corp., 332 U.S. 194, 196 (1947).

In addition to injunctive relief, Plaintiff seeks a declaration that a patent application for an AI-Generated Invention should not be rejected on the basis that no natural person is identified as an inventor, as well as a declaration that a patent application for an AI-generated invention should list an AI where the AI has met inventorship criteria.

The Federal Declaratory Judgment Act ("Act") provides that "any court of the United States ... may declare the rights and other legal relations of any interested party seeking such declaration, whether or not further relief is or could be sought." 28 U.S.C. § 2201. This power is discretionary. Centennial Life Ins. v. Poston, 88 F. 3d 255, 256 (4th Cir. 1996). The "principal criteria" for conducting the declaratory judgment analysis are (i) whether a declaration would serve a useful purpose in clarifying and settling the legal relations in issue and (ii) whether a declaration will terminate and afford relief from the uncertainty, insecurity, and controversy giving rise to the proceeding. See Aetna Cas. & Sur. Co. v. Quarles, 92 F. 2d 321, 325 (4th Cir. 1937). When both of the principal criteria are met, "a district court is obliged to rule on the merits of a declaratory judgment action." See Volvo Constr. Equip. N.A., Inc. v. CLM Equip. Co., 386 F. 3d 581, 594 (4th Cir. 2004).

VII. ARGUMENT

A. DABUS Actually Invented the Subject Matter of the Applications so it is Appropriately Named as the Inventor and Plaintiff is Entitled to the Applications

Because this case involves review under the APA and review is limited to the administrative record without fact finding on behalf of the court, the factual assertions made by Plaintiff during the application process, which have never been disputed by the Defendants, are taken as true for the Court's review. See Genetics & IVF Inst., supra, 801 F. Supp. 2d at 502.

It is thus undisputed that DABUS generated the otherwise patentable inventions at issue and that DABUS identified the novelty and salience of these inventions before they were seen by a natural person. Also, that no natural person qualifies as an inventor for the Applications and, as a result, that Plaintiff was and is unable to identify a natural person who qualifies as an inventor.

Thus, as a *factual* matter, DABUS invented the present inventions—there has been no suggestion by Defendants to the contrary. Defendants simply posit that as a *legal* matter DABUS cannot be listed as an inventor. The effect of which is that two otherwise patentable inventions cannot receive patent protection.

Plaintiff as the developer, user, and owner of DABUS, is entitled to own DABUS' output under, *inter alia*, the common law doctrines of accession and first possession. See generally, Thomas W. Merrill, *Accession and Original Ownership*, Journal of Legal Analysis, 459-505 (2009). In the same way that one who owns a tree owns the fruit of that tree, DABUS is personal property owned by Plaintiff and so Plaintiff is entitled to own DABUS's output. For instance, Plaintiff owned the Neural Flame and Fractal Container as trade secrets prior to publication of the Applications. The patent system is designed to encourage the disclosure of information that otherwise qualifies for trade secret protection for the benefit of the public. AK Steel Corp. v. Sollac, 344 F.3d 1234, 1244 (Fed. Cir. 2003) ("as part of the quid pro quo of the

patent bargain, the applicant's specification must enable one of ordinary skill in the art to practice the full scope of the claimed invention.") It would run contrary to the purpose of the patent system to only allow an AI's owner to own AI output as a trade secret and to discourage the information's disclosure in return for patent protection.

B. Patent Protection for AI-Generated Works is Consistent with the Purpose of the Constitution and the Patents Act

Congress is empowered to grant patents on the basis of the Patent and Copyright Clause of the Constitution. U.S. CONST. art. I, § 8, cl. 8. This clause enables Congress "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." Id. It also provides an explicit rationale for granting patent protection, namely to encourage innovation under an incentive theory. The patent system is also designed to incentivize the disclosure of information, and the commercialization and development of inventions. See Ryan Abbott, *I Think, Therefore I Invent: Creative Computers and the Future of Patent Law*, 54 B. C. L. Rev. 1104-1105 (2016).

Allowing patents for AI-Generated Inventions will result in more innovation. It will incentivize the development of AI capable of producing patentable output by making that output more valuable. Id., at 1081. Patents also incentivize commercialization and disclosure of information, and this incentive applies with equal force to a human and an AI-Generated Invention. By contrast, denying patent protection for AI-Generated Inventions threatens to undermine the patent system by failing to encourage the production of socially valuable inventions.

Patent law also protects the moral rights of human inventors and listing an AI as an inventor where appropriate would protect these human rights. It would acknowledge the work of the AI's creators and serve to inform the public of an invention's origin. Perhaps most

importantly, it will discourage individuals from listing themselves as inventors without having contributed to an invention's conception merely because their name is needed to obtain a patent. Allowing a person to be listed as an inventor for an AI-Generated Invention would not be unfair to an AI, which has no interest in being acknowledged, but allowing people to take credit for work they have not done would devalue human inventorship. It would put the work of someone who merely asks an AI to solve a problem on an equal footing with someone who is legitimately inventing something new.

C. AI-Generated Works Are Eligible for Patent Protection as a Matter of Law

In interpreting the Constitutional and statutory basis for patentability of AI-Generated Inventions, the Court should seek "to give effect to the intent of Congress." United States v. Am. Trucking Ass'ns, Inc., 310 U.S. 534, 542 (1940). Here, the intent of Congress was to create a system that would encourage innovation, as well as to promote disclosure of information and commercialization of new technologies.

Allowing patents on AI-Generated Inventions would be consistent with the Founders' intent in enacting the Patent and Copyright Clause, and it would interpret the Patent Act to promote that purpose. See, e.g., King v. Burwell, 135 S. Ct. 2480, 2496 (2015) (holding the plain language of the statute must be considered in the context of the statute as a whole and taking into account that a narrow literal interpretation would result in outcomes inconsistent with Congressional intent. "Congress passed the Affordable Care Act to improve health insurance markets, not to destroy them. If at all possible, we must interpret the Act in a way that is consistent with the former, and avoids the latter.").

Interpreting statutory language to advance the statute's purpose is particularly warranted in instances where, as in the present case, it is unlikely that Congress anticipated and legislated

for the specific circumstances at issue. See, e.g., Yates v. United States, 135 S. Ct. 1074, 1078 (2015) (holding a fish is not a "tangible object," as that term is used in 18 U.S.C. § 1519. "A fish is no doubt an object that is tangible; fish can be seen, caught, and handled, and a catch, as this case illustrates, is vulnerable to destruction. But it would cut § 1519 loose from its financial-fraud mooring to hold that it encompasses any and all objects, whatever their size or significance, destroyed with obstructive intent. Mindful that in Sarbanes–Oxley, Congress trained its attention on corporate and accounting deception and cover-ups, we conclude that a matching construction of § 1519 is in order: A tangible object captured by § 1519, we hold, must be one used to record or preserve information.")

Allowing patents on AI-Generated Inventions would not upset an existing policy. It would clarify the permissibility of future patent applications rather than retroactively invalidating previously granted patents. By contrast, excluding an entire class of inventions from patentability would undermine the patent system. This is important today, but far more important for future innovation. Given the potential of AI to surpass the limits of human ingenuity, it may even be the case that AI-Generated Inventions one day become the primary source of innovation. Ryan Abbott, Everything is Obvious, Ryan Abbott, 66 UCLA. L. REV. 2, *8 (2019).

In Diamond v. Chakrabarty, the Supreme Court was charged with deciding whether genetically modified organisms could be patented. 447 U. S. 303, 317 (1980). The Court held that a categorical rule denying patent protection for "inventions in areas not contemplated by Congress . . . would frustrate the purposes of the patent law." Id., at 315. The Court noted that Congress chose expansive language to protect a broad range of patentable subject matter. Id., at 316. As technology has advanced, patent law has historically evolved to accommodate and

further encourage such advances.[2] "[A] statute is not to be confined to the 'particular application[s]…contemplated by the legislators." Id. at 315.

Drawing an analogy from the copyright context, just as the terms "Writings" and "Authors" have been construed flexibly in interpreting the Patent and Copyright Clause, so too should the term "Inventors" be afforded the flexibility needed to effectuate constitutional purposes.[3] Indeed, under the work-for-hire doctrine, a corporation can be considered a legal author for copyright purposes. 17 U.S.C. § 101.

D. Defendants' Interpretation Is Not Entitled to Deference

This Court reviews an agency's constitutional and statutory interpretations and application, as well as conclusions of law, *de novo, i.e.*, without deference. See Chevron, U.S.A. Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 842-45 (1984). Deference under Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc., 467 U.S. 837 (1984) is due only to statutory interpretations made by agencies pursuant to a legislative delegation of rulemaking or similar authority. Merck & Co. v. Kessler, 80 F.3d 1543, 1549-50 (Fed. Cir. 1996) ("Merck") (holding that "the broadest of the PTO's rulemaking powers ... does not grant the Commissioner the authority to issue substantive rules" and that "[t]hus, the rule of controlling deference set

[2] The Supreme Court has called the section of the U.S. Code relating to patentable subject matter a "dynamic provision designed to encompass new and unforeseen inventions." J.E.M. AG Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc., 534 U. S. 124, 135 (2001). The Court noted in Bilski v. Kappos that "it was once forcefully argued that until recent times, 'well-established principles of patent law probably would have prevented the issuance of a valid patent on almost any conceivable computer program.'" 561 U.S. 593, 605 (2010) (quoting Diamond v. Diehr, 450 U.S 175, 195 (1981) (Stevens, J., dissenting)). The Court, however, went on to state that "this fact does not mean that unforeseen innovations such as computer programs are always unpatentable." Id., (citing Diehr, 450 U.S at 192–93 (Stevens, J., dissenting)).

[3] In 1973, the Supreme Court in Goldstein v. California noted that the terms "Writings" and "Authors," have "not been construed in their narrow literal sense but, rather, with the reach necessary to reflect the broad scope of constitutional principles." 412 U.S. 546, 561 (1973).

forth in Chevron does not apply" at 1550). See, e.g., Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2118 (2013) (disagreeing with an argument "that the [US]PTO's past practice of awarding gene patents is entitled to deference"). Ass'n for Molecular Pathology v. U.S.PTO, 687 F.3d 1303, 1357 (Fed. Cir. 2012) (Bryson, J., concurring in part dissenting in part) ("the PTO lacks substantive rulemaking authority as to issues such as patentability"). Thus, "for a [US]PTO interpretation to prevail, Article III courts must be convinced that the interpretation is not only reasonable but should, in fact, be understood to be correct." John M. Golden, Working Without Chevron: The PTO as Prime Mover, 65 Duke L.J. 1657, 1673 (2016).

The USPTO has no general substantive rulemaking power; it only has authority to establish procedural regulations. Wyeth v. Dudas, 580 F. Supp. 2d 138, 141 (D.D.C. 2008). Procedural rules are those that "do not themselves alter the rights or interests of parties, although [they] may alter the manner in which the parties present themselves or their viewpoints to the agency." Tafas v. Doll, 559 F.3d 1345, 1351-54 (Fed. Cir. 2009). The Supreme Court explained the basis for the distinction: "administrative implementation of a particular statutory provision qualifies for *Chevron* deference when it appears that [1] Congress delegated authority to the agency generally to make rules carrying the force of law, and [2] that the agency interpretation claiming deference was promulgated in the exercise of that authority." United States v. Mead Corp., 533 U.S. 218, 226-27 (2001). Congress has made no such grant of authority to the USPTO with respect to issues of substantive patent law. See, e.g., Merck, supra, 80 F.3d at 1549-50.

Defendants are also not entitled to Skidmore deference, Skidmore v. Swift & Co., 323 U.S. 134 (1944), which looks to "the thoroughness of [the agency's] consideration and the validity of its reasoning, i.e., its basic power to persuade if lacking power to control." Merck,

supra, 80 F.3d at 1550. As the Federal Circuit stated with respect to USPTO interpretation of a statutory provision on patent-term extensions, "Skidmore deference is not warranted because the [US]PTO's interpretation is neither persuasive nor consistent," Photocure ASA v. Kappos, 603 F.3d 1372, 1376 (Fed. Cir. 2010).

Accordingly, Defendants' interpretation of the legal issues in this case is entitled to no deference. In any event, "[e]ven if some level of deference were owed to the [US]PTO's interpretation, neither Chevron nor Skidmore permits a court to defer to an incorrect agency interpretation." PhotoCure ASA v. Kappos, 603 F. 3d 1372, 1376 (Fed. Cir. 2010). Here, the USPTO's reasoning is not only unpersuasive—it is manifestly contrary to the purpose of the patent system.

E. The Authorities Relied Upon by Defendants Do Not Stand for The Proposition That AI-Generated Inventions are Unpatentable

No statute or case relied upon by Defendants in the Decisions explicitly holds that an AI-generated invention cannot be patented or that an AI cannot be listed as an inventor. Rather, any discussion of inventors as natural persons has been made outside the context of this case and based on the *assumption* that only a natural person could invent. There is a principled reason for prohibiting corporate and sovereign inventorship—in the case of a traditional invention, it could prevent legitimate human inventors from enjoying the fruits of their labor.

In the Rejections, Defendants relied on the language in 35 U.S.C. §§ 100, 101, 102, 115, 116(c), 185, and 256(a), that use the terms "person," "individual," "whoever," "himself," and "herself" to argue that the words either "**suggest**[] a natural person" or "uses pronouns specific to natural persons." (ECF 15-2 at pp. 208-212 [A208-212]; ECF 15-3 at pp. 206-210 [A459-463] [emphasis added]). Depending on context, such language can be interpreted to include entities other than natural persons. See, e.g., Burwell v. Hobby Lobby Stores, Inc., 573 U.S. 682 (2014)

(holding that the Religious Freedom Restoration Act, which prohibits Government from substantially burdening a "person's" exercise of religion, applied to certain corporations). Indeed, 35 U.S.C. § 271 uses the term "whoever" in the context of infringement, yet there is no limitation on naming non-natural persons as defendants in infringement actions. See, e.g., 35 U.S. Code § 271(a) ("Except as otherwise provided in this title, **whoever** without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent." [emphasis added])

More importantly, there is no evidence that Congress ever intended to prohibit patents on AI-Generated Inventions. Even if statutory and judicial language refers to inventors as individuals, none of this has been in the context of AI-Generated Inventions. These statutes relied upon by Defendants were passed long before AI-Generated Inventions were a reality. *See* 35 U.S.C. § 101 [enacted July 19, 1952 (66 Stat. 798)]; § 102 (same); § 115 [enacted July 19, 1952 (66 Stat. 799)]; § 116 (same); § 185 [enacted July 19, 1952 (66 Stat. 807)]; § 256 [enacted July 19, 1952 (66 Stat. 810)]. The term "artificial intelligence" was not even coined until 1956, years after these statutes were passed into law. Ryan Abbott, The Reasonable Robot: Artificial Intelligence and the Law, Cambridge University Press 2020 at 21.

Defendants cited to U. of Utah v. Max-Planck-Gesellschaft Zur Forderung Der Wissenschaften E.V., 734 F.3d 1315, 1318 (Fed. Cir. 2013) ("Wissenschaften E.V.") and Beech Aircraft Corp. v. EDO Corp., 990 F.2d 1237, 1244 (Fed. Cir. 1993) which are cases that state sovereigns and corporations cannot be patent inventors. (ECF 15-2 at pp. 209-210 [A209-210]; ECF 15-3 at pp. 207-208 [A460-461].) Defendants fail to acknowledge a fundamental difference between an AI and a corporation is that corporations are literally made up of persons and can

only act through their agents. See Commodity Futures Trading Com'n v. Weintraub, 471 U.S. 343, 348 (1985) ["… a corporation must act through agents."]. Therefore, when a company files a patent application, it will always be the case that there is at least one natural person who qualifies as an inventor (at least, assuming it is not an application for an AI-Generated Invention). If a company was allowed to list itself as an inventor, or not to list an inventor at all, it would deprive these human inventors of credit. It could also deprive them of economic benefits to which they might be entitled by virtue of their inventorship, for example, if they have an agreement with their employer for royalty sharing. Compared to individuals, companies own the overwhelming majority of patents. (https://www.uspto.gov/web/offices/ac/ido/oeip/taf/all_tech.htm Part A1 – Table A1-1b (e.g., for patents granted in 2019, US companies owned 162,806 patents, while US individuals owned 14,945 patents)). DABUS, unlike a company, did not require inventive skill to be exercised by a natural person to generate the present inventions—the inventions were created and conceived entirely by DABUS.

Because statutes and cases that refer to inventors as individuals have never done so in relation to an AI-generated invention, they should not be misapplied to support a blanket prohibition on patent rights. See Karl F. Milde, Jr., Can a Computer Be an "Author" or an "Inventor"?, 51 J. PAT. OFF. SOC'Y 378, 379 (1969) ("The closest that the Patent Statute comes to requiring that a patentee be an actual person is in the use, in Section 101, of the term 'whoever.' Here too, it is clear from the absence of any further qualifying statements that the Congress, in considering the statute in 1952, simply overlooked the possibility that a machine could ever become an inventor.").

F. Conception Does Not Prohibit Artificial Inventors

For a person to be an inventor, the person must contribute to an invention's "conception." Conception has been defined as "the complete performance of the mental part of the inventive act" and it is "the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice…." Townsend v. Smith, 36 F.2d 292, 295 (CCPA 1929).

As a matter of fact, DABUS's output formed a definite and permanent idea of a complete and operative invention as it is thereafter to be applied in practice. Because the Applications are otherwise patentable and meet both enablement and written description requirements, the Applications sufficiently enable a person having ordinary skill in the art to make and use the inventions, and therefore the Applications by necessity contain a definite and permanent idea of a complete and operative invention as it is thereafter to be applied in practice. Hyatt v. Boone, 146 F.3d 1348, 1352 (Fed. Cir. 1998) ("The filing of a patent application serves as conception and constructive reduction to practice of the subject matter described in the application.") Because of this, "[an] inventor need not provide evidence of either conception or actual reduction to practice when relying on the content of the patent application." MPEP 2138.05. In addition, "reduction to practice can be done by another on behalf of the inventor." Id. As no natural person qualified as an inventor, DABUS is the only possible candidate to have conceived of the inventions. In the alternate, Defendants could have allowed, or could now allow, the applications to proceed without listing any inventor—however, listing an AI inventor is more consistent with the spirit and purpose of the Patents Act.

While prior judicial language about conception sometimes refers to it in the context of human mental activity, it does not discuss whether a non-human could conceive of anything, and

even with regards to individuals it is not clear what "formation in the mind" *actually* means. Courts associating inventive activity with conception have not been using terms precisely or meaningfully in the context of AI-Generated Inventions. That is not only because a court has not previously grappled the legal issues here, but also because the importance of conception (in the patent context) was primarily for establishing a priority date for purposes of interference proceedings, or antedating a prior art reference, under the first-to-invent system that existed prior to the Leahy-Smith America Invents Act. Public Law 112–29. Hyatt, supra, 146 F.3d at 1351 (Fed. Cir. 1998) ("The interference proceeding implements the principle of United States law that the right to a patent derives from priority of invention, not priority of patent application filing … Thus, during an interference proceeding evidence may be presented of conception, reduction to practice, and diligence, as appropriate to the positions of the parties…") The requirement for conception was certainly never intended to exclude inventions from patentability.

If conception is required for an invention, it is unclear under existing law whether an AI would have to engage in a process that results in inventive output—which it can do—or whether, and to what extent, it would need to mimic human thought. If the latter, it is unclear what the purpose of such a requirement would be except to exclude nonhumans (for which a convoluted test is unnecessary). Dr. Thaler has persuasively argued that DABUS's architecture imitates the architecture of the human brain. See, e.g., Stephen L. Thaler, Synaptic Perturbation and Consciousness, 6 INT'L J. MACHINE CONSCIOUSNESS 75 (2014). There is a slippery slope in determining what constitutes "conception" in an AI even leaving aside deficits in our understanding of the nature of thought.

If DABUS is able to generate patentable output but not to engage in "conception"—would a computer scientist have to design a completely digitized version of the human brain? Even if designing a completely digitized version of the human brain was possible, it might not be the most effective way to structure an inventive machine. On top of that, it would be difficult or impossible for the USPTO and the courts to distinguish between different computers' architectures.

More importantly, the primary reason a conception requirement should not prevent AI-Generated Inventions from being patented is that the patent system should be indifferent to the means by which invention comes about. Congress came to this conclusion in 1952 when it abolished the Flash of Genius doctrine which held that in order to be patentable, a new device, "however useful it may be, must reveal the flash of creative genius, not merely the skill of the calling." Cuno Eng'g Corp. v. Automatic Devices Corp., 314 U.S. 84, 91. The doctrine was interpreted to mean that an invention must come into the mind of an inventor in a "flash of genius" rather than as a result of "long toil and experimentation." Graham v. John Deere Co. of Kansas. City, 383 U.S. 1 (1966).

Today, "[p]atentability shall not be negated by the manner in which the invention was made." 35 U.S.C. § 103; see also Graham, supra, 383 U.S. at 17, n. 8 ["The second sentence states that patentability as to this requirement is not to be negatived by the manner in which the invention was made, that is, it is immaterial whether it resulted from long toil and experimentation or from a flash of genius."] "The process by which an invention is created is irrelevant to the analysis of its patentability." Dey, L.P. v. Teva Parenteral Medicines, Inc., 6 F. Supp. 3d 651, 677 (N.D.W. Va. 2014).

Both the literal language and the spirit of 35 U.S.C. § 103 hold that patentability of AI-Generated Inventions should be based on the inventiveness of an AI's output rather than on a clumsy anthropomorphism. Patent law should be interested in generating socially valuable innovation instead of philosophical distinctions about whether machines think.

VIII. CONCLUSION

The future of innovation is at stake in this case. Because denying patent protection for AI-Generated Inventions would run contrary to the Constitution and the Patents Act, the Court should grant Plaintiff's prayer for relief. The USPTO should not be allowed to impede the progress of science by advancing policies that are hostile to intellectual property rights.

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